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EDITORIAL

Alf Nachemson, MD, PhD, 1931–2006: an exceptional pioneer in spine care

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It is with great sadness we learned of the death of Alf Nachemson on December 4, 2006 at the age of 75. Alf Nachemson was born June 1, 1931. He is survived by his wife Ann and his children, Louise, Mikael, Lotta and Sophie and their families.

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Alf Nachemson graduated in medicine from the Karolinska Institute in Stockholm, Sweden, in 1956 and earned his PhD at the University of Uppsala in 1960. He moved to Gothenburg and the Sahlgrenska Hospital in 1961, where he became an orthopaedic specialist and associate professor. He was appointed as Professor and Chairman of Orthopaedic Surgery at Göteborg University and Sahlgrenska Hospital in 1971 and served in this capacity until his retirement in 1996. Under his Chairmanship his Department became a major research facility with innovative orthopaedic research laboratories and a large research budget. He very soon understood the importance of subspecialties in orthopaedics and divided his department along this idea. He was also a member of the Board of the Medical Faculty at Göteborg University. He officially retired at the age of 65, but continued to be active literally until his last day.

In the mid-1950s Alf Nachemson was given an assistant research position under Professor Carl Hirsch at Uppsala University Hospital. To study the loading conditions of the human spine he developed a method for intradiscal pressure measurements. The initial work was performed on post-mortem material and was the basis for his thesis entitled ''Lumbar intradiscal pressure: experimental studies on post-mortem material,'' published in Uppsala in 1960. He subsequently performed the first in vivo disc pressure measurements in San Francisco and Göteborg. The in vitro studies had already shown that it was possible to measure the intradiscal pressure not only in non-degenerated discs but also in moderately degenerated discs. The in vivo measurements proved that the intradiscal pressure reflected the loads on the human spine. Since then, measurements of the intradiscal pressure have

remained the only measurements directly determining the loading conditions of the spine in vivo. This seminal work has been universally quoted, and his classical drawings of different body positions over pressure bar graphs have been represented in innumerable publications. Almost 50 years after Alf Nachemson's studies, the experiments were repeated by other groups whose findings largely confirmed the correctness of the initial findings. His pioneering measurements are still landmarks in orthopaedic, occupational and rehabilitation textbooks all over the world.

Alf Nachemson also initiated studies on the effects of vibration and smoking on disc nutrition and degeneration in animals. In the late 1960s he introduced RCTs in the field of lumbar disc surgery and performed other RCTs on conservative treatment in industrialized settings as well as for the general population, back schools, cognitive behavioral treatment, etc. He was one of the initiators of the large epidemiological study in the 1980s of risk factors for reporting of low back pain in the so-called Boeing study. More recently, he turned his interest to pain, and studied pain sensitivity in relation to biomarkers in the CSF in patients with chronic back pain. He also introduced fMRI of the brain into the research of chronic musculoskeletal pain.

For 20 years he was co-editor of SPINE. Through his editorial work he contributed to the continuously improved impact factor of the journal. He was one of the founders of the Cochrane Collaboration Back Review Group established in 1993, and was responsible for this group for almost 10 years. During his chairmanship at the Department of Orthopaedics in Gothenburg, 81 PhD theses were successfully defended; 16 of his PhD students have become professors. His great interest in evidence-based medicine has resulted in two books on back pain, published in 1990 and 2000 for the SBU (The Swedish Council on Technology Assessment in Health Care). For his research and outstanding contributions to spine research, he received several major awards from many different parts of the world. These include the SIROT Award 1981, the Arthur Steindler Award 1986, the Kappa Delta Award for Outstanding Research Paper 1991, the Bristol-Myers Squibb/Zimmer Award 1995, and he was the first recipient of the ISSLS-Stryker Spine Lifetime Achievement Award in 2000. Honorary memberships were bestowed on him by more than 20 scientific societies and organizations. He was a founding member and President of the International Society for the Study of the Lumbar Spine and President of the European Spinal Deformities Society that was later merged in the Spine Society of Europe of which he became a very active member. On numerous occasions he served as an expert for governmental agencies, not only in Sweden but also in the USA, Australia and Canada.

He was very successful in attracting private donors resulting in the Dr Felix Neubergh Foundation, and the Ingabritt and Arne Lundberg Research Foundation in Sweden. In close collaboration with AB Volvo he initiated the prestigious Volvo Award which was awarded during 25 years by the International Society for the Study of the Lumbar Spine. He also served as chairman of the Volvo Research and Educational Foundation.

He served as a visiting professor at several universities in the USA between 1975 and 1991: Northwestern University, Rush-Presbyterian at St Luke's Medical Center and University of Illinois, Chicago Illinois; University of Washington, Seattle, Washington; Harvard Medical School, Beth Israel Hospital, Boston, Massachusetts and Georgetown University, Washington, DC. He was a visiting professor for shorter period of times at 50 universities in Australia, New Zealand, Asia, South Africa, North America, South America and Europe. In addition to co-editing SPINE, he was on the editorial boards of seven other scientific journals and numerous scientific boards. His own list of publications was extensive. Over 500 papers have been published by Alf Nachemson as first author or coauthor often in prestigious journals and he gave more than 1,500 lectures worldwide, most of them by invitation. For many years and long before evidence-based medicine was generally accepted, Alf Nachemson continuously worked for the improvement of the scientific quality in back studies. Many colleagues all over the world will remember him for his persistent support for high quality research. His contributions to the Cochrane Collaboration and to HTA (Health Technology Assessment) stemmed from his genuine interest in scientific evidence. Three weeks before he passed away, he initiated the ''Alf Nachemson Foundation for Evidence Based Spine Research''. This initiative reflects his genuine interest in this field.

Alf Nachemson was a very skilful physician. In patient management he always paid meticulous attention to guarantee the highest quality. As a researcher he was constantly involved in new ideas and projects. He was an outspoken advocate of good medical practices and was not afraid to stand, sometimes very strongly, for what he believed were the right ways to treat our spine patients. He opposed, again often strongly and passionately, non-scientifically supported interventions. And he did this long before Evidence Based Medicine (EBM) became widely implemented even before the name EBM appeared. He was one of the

great driving forces which helped to introduce EBM in spinal care and one of the first, if not the first among us, to understand the importance of Cochrane reviews in spine surgery. He helped to change the way many of us considered our profession.

He was a very charismatic leader for his co-workers and an enthusiastic inspirer for all those who where lucky to know him closely. He had an enormous work capacity and with enthusiasm, humour and liveliness, he stimulated and inspired all of us. Throughout his work, his vision was excellence and dedication to the advancement of science and the well being of patients. It is rare, in a lifetime, to have had such a profound impact on so many people and, in fact, on a whole medical specialty.